



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,024	11/14/2001	Hiroyuki Tadano	70904/56,692	1178
21874	7590	04/12/2005	EXAMINER	
EDWARDS & ANGELL, LLP P.O. BOX 55874 BOSTON, MA 02205			PSITOS, ARISTOTELIS M	
			ART UNIT	PAPER NUMBER
			2653	

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/994,024	TADANO ET AL.	
	Examiner	Art Unit	
	Aristotelis M Psitos	2653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/14/01 & 1/3/05</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2653

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The IDS of 11/14/01 and 1/3/05 have been received and made of record with the following exceptions. Document AA in the first IDS is NOT a US patent; document BG in the second IDS is not PRIOR ART.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 1,11, and 12-14 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. The disclosure with respect to the wave front curvature is predicated upon difference in optical thickness of the group objective lens, or the record medium itself and is critical or essential to the practice of the invention, but not included in the claim(s).

The dependent claims 13 and 14 fail to clarify such and fall with their respective parent claim.

1. Claims 4,5-10, 15,16-20 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Independent claims 4,5,15 and 16 recite a particular formulation of the appropriate error signal, each of which relies upon a coefficient k_1 , or k_2 . However, neither coefficient is sufficiently disclosed, nor claimed.

Art Unit: 2653

The dependent claims fall with their respective parent claim because they do not clarify the above.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1,11 and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The above noted claims are drawn to the appropriate wave front/curve as shown in figure 5 and the associated disclosure thereof, however, such cannot be derived/interpreted from the claim language. Proper correction is respectfully requested. Dependent claims 13-15 fall with their parent claim.

AS far as the claims are interpreted the following art rejections are made.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 15,17 and 19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1/8/9/10/11 of U.S. Patent No. 6822209 further in view of claim 4 of the same patent. Although the conflicting claims are not identical, they are not patentably distinct from each other because: see below analysis.

Art Unit: 2653

The following analysis is made:

US 6,822,209

15. An optical pick-up device comprising :

claim 1: line 1

a light source;

line 2;

a focusing optical system for focusing a light beam
emitted from said light source onto an optical recording
medium;

lines 3-5, wherein the examiner interprets
the objective lens as recited in these lines
as the focusing system;

light beam separation means for separating a light
beam reflected from said optical recording medium and
passing through said focusing optical system, into a
first light beam which includes a light axis of the light
beam and a second light beam which does not include the
light axis of the light beam;

lines 6-16; wherein the inner most
light beam (inner circumference) includes
the light beam axis (as defined by applicant)
and the second light beam is either the
light beam from the second circle or
third circle.

focus position deviation amount detection means for
detecting a deviation amount of at least one of focus
positions of the first light beam and the second light
beam separated by said light beam separation means; and

lines 30-33;

correction means for correcting a spherical
aberration of said focusing optical system in accordance
with the deviation amount of the focus position detected
by said focus position deviation amount detection means,
said focus position deviation amount detection means

claim 11, lines 8 plus

Art Unit: 2653

including:

a first focus error detection section for detecting
focus position deviation of the first light beam from
the first light beam, and outputting
signal; and

claim 4 item (b)
see below.

a second focus error detection section for detecting
focus position deviation of the second light beam from
second light beam, and outputting second error
first error signal,

claim 11

wherein said focus position deviation amount
detection means obtains a spherical aberration error
signal SAES showing an amount of the spherical aberration
of said focusing optical system, from an equation:

claim 10: line 15

$SAES = F1 - FES \times k1$ ($k1$: a coefficient),

where $F1$ is the first error signal, $F2$ is the second
error signal, and FES , which is focus error signal

showing an amount a focus error of said focusing
optical system, $+ F2$, and

said correction means corrects the

aberration in accordance with the spherical

error signal $SAES$ obtained by said focus position

Art Unit: 2653

deviation amount detection means.

As analyzed above, claim 15 is a difference in scope of claims 1/8/9/10/11 in the above patent. Stated differently, claim 15 includes the limitations as stated above from claims 1/8/9/10/11 plus the additional limitation as recited in claim 4 in the above patent.

Since claim 10 recites the generation F1 (see line 15), it would have been obvious to include the limitation of claim 4, the source of the F1 signal, so as to provide adequate support for the generation of the final resultant SAES signal recited in line 15 of claim 10.

Hence the examiner considers the present claim 15 as an obvious variant/scope of the subject matter already patented.

With respect to the limitations of claim 17, they are already present in claim 1 of the above patent, see lines 17-26 in the patented claim.

With respect to the limitations of claim 19, this is drawn to a functional desired result and such is considered present/covered by the above-patented claims when the system operates.

5. Claim 18 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1/4/10/11 of U.S. Patent No. 6822209 in view of Ma et al. The limitations of claim 18 are drawn to a variation of the holographic lens, which is taught by the Ma et al system, see for instance fig 12.

It would have been obvious to modify the base system of patent 6822209 as stated above with respect to claim 15 and modify such so as to have an alternative beam separating element design, motivation is to vary the beam separator in order to yield a smaller foot print for the detector array necessary to detect the reflected signals. Such rearrangement of the detector array is merely a parameter in the overall optical head unit, and reducing the footprint thereof saves space/size.

6. Claims 16 and 20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1/4/10/11 of U.S. Patent No. 6822209. Although the

Art Unit: 2653

conflicting claims are not identical, they are not patentably distinct from each other because –see the following analysis.

Claim 16 follows claim 15 as analyzed above with the exception of reciting a different formula with respect to SAES, i.e., $SAES = F2-FES \times K2$ ($K2$: a coefficient). This formula is present in claim 10 line 16 of the above patent. Again, the examiner concludes that the present claim is merely an obvious variant of the already patented claims 1/4/10/11 in the above noted patent.

With respect to the limitations of claim 20, this is drawn to a functional desired result and such is considered present/covered by the above-patented claims when the system operates.

7. Claims 4,5,6 and 9 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1/8/9/10/11 of U.S. Patent No. 6822209 further considered with claim 4 of the same patent. Although the conflicting claims are not identical, they are not patentably distinct from each other because –see the following analysis.

Claim 4. An aberration detection device comprising : claim 1: line 1

light beam separation means for separating a light beam reflected from said optical recording medium and passing through said focusing optical system, into a first light beam which includes a light axis of the light beam and a second light beam which does not include the light axis of the light beam;

lines 6-16;

aberration detection means for detecting a spherical aberration of said focusing optical system, in accordance with at least one of focus positions of the first light beam and the second light beam separated by said light

claim 10, lines 11-14

Art Unit: 2653

beam separation means,

said aberration detection means including:

a first focus error detection section for detecting
focus position deviation of the first light beam from
the first light beam, and outputting
signal; and

claim 4 item (b)

see analysis below.

a second focus error detection section for detecting
focus position deviation of the second light beam from
second light beam, and outputting second error
first error signal,

claim 11

wherein said focus position deviation amount
detection means obtains a spherical aberration error
signal SAES showing an amount of the spherical aberration
of said focusing optical system, from an equation:

claim 10: line 15

$SAES = F1 - FES \times k1$ (k1: a coefficient),

where F1 is the first error signal, F2 is the second
error signal, and FES, which is focus error signal
showing an amount a focus error of said focusing
optical system, + F2, and

said aberration detection means detects the
spherical aberration in accordance with the spherical

Art Unit: 2653

error signal SAES.

Claim 4, is interpreted to include the limitations of claims 1/8/9/10/11, i.e., a difference in scope of these claims and hence is already protected by the above patented claims.

Since claim 10 recites the generation F1 (see line 15), it would have been obvious to include the limitation of claim 4, the source of the F1 signal, so as to provide adequate support for the generation of the final resultant SAES signal recited in line 15 of claim 10.

Claim 5 is similar to claim 4 but includes an alternative formula, i.e., $SAES = F2 - FES \times k2$ ($k2$: a coefficient), which is also present in claim 10, line 16 of the above patented claim.

The limitations of claims 6 and 9 are included in claim 1 lines 17-26.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1,2, 3, 11, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/18466, or JP 2000-171346. (see the discussion with respect to US patent 6498330 – which the examiner relies upon for providing an English translation of the JP document).

Art Unit: 2653

The following analysis is made:

WO 99/18466

An aberration detection device comprising:

see abstract

light beam separation means for

the two concentric circles 50 & 51

separating a light beam passing through

a focusing optical system into a

first light beam which includes a light axis of the light

beam and a second light beam which does not include the

light axis of the light beam, at a boundary drawn at an

extreme value of a curve representing a wave front when

the light beam has a minimum beam diameter on an

information recording layer an optical recording

medium; and

spherical aberration detection means for detecting

see figure 7 and the discussion thereof,

a spherical aberration of said focusing optical system

in accordance with at least one of focus positions of the

two light beams means.

As far as the examiner can interpret the claimed language, the first and second light beams are the light beams generated by focus circles 50 and 51 respectively. These signals are appropriated detected and relied upon to correct for spherical aberration. Hence the claimed language referring to the extreme value of a curve ... is inherently present when the system operated when the light beam in the PCT document is at a minimum beam diameter, i.e., when appropriately focused.

The limitation of claim 3, hologram is present.

With respect to method claim 11, such is met when the system operates.

With respect to claim 12, the additional elements, i.e., a light source, and the correction means are also present in the above system and hence met.

Art Unit: 2653

With respect to the JP document, see the discussion below in paragraph 5.

9. Claims 1-3, 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoshida.

As far as can be ascertained, the light beams are present when the light source generates the original beam through the holographic beam splitter 2, the first light beam includes the optical axis while a second light beam is generated appropriately outside the first light beam area. The detectors appropriately detect such returning light and yield the spherical aberration detection signals. They are then relied upon to correct the aberration distortion – see the discussion with starting at col. 5 line 35 to col. 9 line 9.

With respect to claim 11, the method is met when the above system operates.

10. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 12 above, and further in view of Ma et al.

The particular separation element is described in Ma et al – see above note with respect to claim 18 in paragraph 5 above.

It would have been obvious to modify the base system as stated above in either paragraph 8 or 9 and modify such so as to have an alternative beam separating element design, motivation is to vary the beam separator in order to yield a smaller foot print for the detector array necessary to detect the reflected signals. Such rearrangement of the detector array is merely a parameter in the overall optical head unit, and reducing the footprint thereof saves space/size.

The hologram limitation of claim 14 is met by the base reference and no further modification is required.

Art Unit: 2653

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Braat et al, Martynov, Sakai, Yamada, Yanagisawa et al are also cited as illustrative of prior art spherical aberration correction systems, relying upon concentric circle generated focusing error signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M Psitos whose telephone number is (571) 272-7594. The examiner can normally be reached on M-Thursday 8 - 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AMP

Aristotelis M Psitos
Primary Examiner
Art Unit 2653

